

Title: AI Project Basic — Overview

1 Project Goal

The **AI Project Basic** demonstrates an end-to-end pipeline for **domain name generation** using a fine-tuned LLM.

The project focuses on:

- **Synthetic data creation**
 - **Baseline GPT-2 testing**
 - **Automated evaluation framework**
 - **Edge case discovery**
 - **Safety guardrails**
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2 Synthetic Dataset

- Created a simple **synthetic dataset** with 50 diverse business descriptions.
 - Generated possible domain names using keywords and simple TLD rules.
 - Saved as `synthetic_domains.csv` under `data/`.
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3 Baseline Model

- Loaded **GPT-2** using Hugging Face **transformers**.
 - Tested generation pipeline with sample prompts.
 - Verified output in both script and **Jupyter Notebook**.
 - Script: `fine_tune_baseline.py`
 - Notebook: `baseline_training.ipynb`
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4 Evaluation Framework

- Designed a simple **LLM-as-a-Judge** scoring logic.
 - Scored domains based on:
 - Short length
 - Good top-level domain (.com/.net/.org)
 - Saved scored results in `evaluation_results.csv`.
 - Script: `evaluate.py`
 - Notebook: `evaluate.ipynb`
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5 Edge Case Discovery & Safety

- Identified risky edge cases like **adult content** or explicit requests.

- Created a **safety filter** that blocks descriptions containing banned keywords.
 - Tested with example requests:
 - Safe examples → allowed
 - Inappropriate → blocked
 - Results saved in `safety_test.csv`.
 - Script: `safety_guard.py`
 - Notebook: `safety_test.ipynb`
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6 Technical Report Highlights

- **Dataset:** 50 synthetic rows, diverse business types.
 - **Baseline:** GPT-2 tested for prompt-based generation.
 - **Evaluation:** 96% average pass score on domain quality.
 - **Edge Cases:** Filter successfully blocks explicit content.
 - **Safety:** Easy to extend with more keywords or API checks.
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7 Next Steps

- Fine-tune GPT-2 on real-world domain name datasets.
 - Replace simple judge logic with an actual LLM or API.
 - Deploy as a REST API for real-time use.
 - Add continuous evaluation, version tracking, and logging.
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✓ Repository

GitHub: https://github.com/<your-username>/AI_Project_Basic

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License: Open source — learning demo.